LOS ANGELES COUNTY FIRE DEPARTMENT
HEALTH HAZARDOUS MATERIALS DIVISION
UNIFIED PROGRAM AGENCY

HAZARDOUS WASTE DETERMINATION GUIDANCE DOCUMENT

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BACKGROUND

Due to chemical reformulations and product substitutions it is increasingly difficult to determine if a particular spent material is a hazardous waste. Ultimately, it is the generators responsibility to determine if the spent material is hazardous or not. This can be done in two ways, the Generator's Knowledge or by conducting Hazardous Waste Analysis of the spent material.

GENERATOR KNOWLEDGE

It is the hazardous waste generator's responsibility to determine if a waste is hazardous or not. The generator can do this by (1) determining whether the waste is included on one of the lists of substances classified as hazardous wastes or (2) determining whether the waste exhibits one or more hazardous characteristics (i.e., ignitable, reactive, corrosive, or toxic). The generator can conduct a waste determination by either:

- Applying generator knowledge of the hazardous properties of the waste in light of the materials and processes used (e.g., material safety data sheets and process flow diagrams); or
- Providing analytical testing data (i.e., hazardous waste analysis).

Waste determinations require documentation and must be kept at the facility available for inspection.

HAZARDOUS WASTE ANALYSIS

If a generator is unfamiliar with their chemical processes, and/or they cannot adequately explain whether an associated waste stream is hazardous or not, then a hazardous waste analysis should be conducted. This entails collecting representative samples of the waste and having it chemically analyzed at a state-certified environmental laboratory.

Sample Collection

Before sampling a waste, the generator should "plan" for sampling. Meaning, the generator needs to know exactly what sample to take, why they are taking it, and how to take it.

Representative Sample: When collecting waste samples, be sure to collect representative samples that can be expected to exhibit the average properties of the whole waste. The number of samples to be colleted is dependent on the type and quantity of the waste, and the type and purpose of the sampling. If it is known that the waste is not variable (that is, the waste chemical types and concentrations are consistent throughout the media to be sampled), then one sample point may be considered. If a waste is a variable, and waste chemical type and/or concentration differs within the media to be sampled, then more planning is required and more sampling points should be incorporated. For instance, a drum or tank may contain distinct "phases", with solids resting on the bottom and organics floating on the surface (sampling technique and equipment would be critical in this case) or, wastes flowing from a process may vary in chemical concentrations as it leaves the process (it would be important to take several samples over time to obtain a representative sample). Provisions must be made to ensure that the sample(s) submitted to the laboratory contains a proportional part of the "whole" waste.

Sampling Containers and Equipment: When collecting waste samples, be sure to place the waste in appropriate laboratory-grade sampling containers using clean and appropriate sampling utensils (e.g.,

disposable plastic scoop). After the samples are collected, the samples should be placed in a refrigerated ice chest for transportation to the laboratory. The laboratory contracted to analyze the waste samples usually supplies the appropriate sample containers and equipment. Sometimes, for an additional fee, the laboratory can also provide a sampler to collect the waste samples as directed by the generator.

Choosing the Appropriate Laboratory Analysis

The reason the generator tests waste is to determine whether it is hazardous or not. A waste is hazardous if it exhibits any of the four characteristics of hazardous waste, which include ignitability, corrosivity, reactivity and toxicity (there are other criteria that defines a waste as hazardous, however, this information exceeds the scope of this guidance document. Therefore, the generator needs to know what to analyze the waste for prior to collecting the samples. Descriptions of the characteristic hazardous wastes and the associated analytical tests are presented below, except for reactive waste. Reactive waste is usually associated with pure or relatively pure compounds that have obvious reactivity characteristics (e.g., explode or create toxic fumes under common handling conditions). Generation of cyanide or sulfide is a major reactivity criterion. Also, in some cases, there are no reliable test methods for reactive waste.

Ignitable Waste: Waste that may readily catch fire and sustain combustion is potentially ignitable waste. This waste should be analyzed for flash point (for liquid waste) or rate of combustion (for non-liquids). Examples of ignitable waste include spent fuel (e.g., gasoline) and waste solvent (e.g., petroleum naphtha).

Corrosive Waste: Waste that is acidic or alkaline that may readily corrode or dissolve materials they come in contact with is potentially corrosive waste. This waste should be analyzed for pH and/or rate of steel corrosion. Examples of corrosive waste include spent acid (e.g., sulfuric acid) and waste caustic rinse water (e.g., contains sodium hydroxide).

Toxic Waste: Waste that may cause deleterious health or environmental effects (e.g. carcinogen) is potentially toxic waste. There are numerous constituents that can make a waste toxic; therefore, toxic waste streams are abundant and diverse. Such wastes can contain heavy metals (e.g., lead), volatile organic compounds (VOCs), semi-volatile organic compounds, and various other organic constituents (e.g., herbicides and pesticides). There are several analytical methods that can be used to identify toxic constituents. This should be discussed with regulators, if a correction notice has been issued. The certified laboratory can be valuable resource, as well. If the constituents of the waste are unknown or potentially exhibit an adverse synergistic effect, an aquatic toxicity fish bioassay test could be run to determine the acute toxicity of the waste. Examples of toxic waste include metal polishing dust (e.g., copper, zinc and chrome), spent plating solution (e.g., chromium and cyanide), waste dry cleaning solvent (e.g., perchloroethylene), used oil, waste anti-freeze (e.g., ethylene glycol), and waste paint (e.g., contains VOCs and metals).

Certified Environmental Laboratories

The waste samples should be taken to state-certified environmental laboratory accompanied with chain-of-custody documentation, which identifies the waste samples, analytical tests, laboratory, and which is signed by the sample collector(s), transporter, and laboratory representative. A listing of certified laboratories can be obtained from the following website: http://www.dhs.ca.gov/ps/ls/elap/html/lablist.htm.

Disclaimer

This guidance document does not replace or supersede relevant statutes and regulations. It is intended for informational purposes only and may not encompass all of the statutes and regulations to this topic. More details may be found at Cal EPA Department of Toxic Substances Control (DTSC) www.dtsc.ca.gov. If further information is needed, call the County of Los Angeles CUPA at (323) 890-4045.